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Building verbs in language mixing varieties

DOI 10.1515/zfs-2017-0008

Abstract: This paper discusses two patterns of language mixing involving verbal predicates produced by bilingual speakers, the so-called light verb construction and the so-called affixal pattern. The empirical focus of the study is on Greek-German and Cypriot Greek-English varieties, which are contrasted to the Spanish-German variety discussed in González-Vilbazo and López (2011). An analysis of the constructions is offered using the tools of Distributed Morphology and Minimalist Syntax. The paper shows that bilingual speakers have very detailed knowledge of fine properties of their two linguistic systems that become apparent in the context of building verbs.

Keywords: language-mixing, light verb construction, affixal pattern, distributed morphology

1 Introduction

As has been reported in the literature, a common pattern observed in bilingual conversations is that bilingual speakers tend to mix their two languages, see also Müller (this volume) for some discussion and references. I will discuss two such types of mixing, which both involve, loosely speaking, the formation of verbal predicates. The first one is illustrated in (1), and I will refer to it as the light verb construction (LVC).¹ In this string, speakers produce a light verb

¹ Edwards and Gardner-Chloros (2007) refer to these forms as compound verbs, while Myers-Scotton (2002) refers to them as *do*-constructions. Wohlgemuth (2009), and González-Vilbazo and López (2011) use the term light verbs/light verb strategy. Following these authors, I will use this label here too. As we will see, LVCs do not only combine with infinitival forms, nominals and participles are also found. My focus, however, will be on the infinitival pattern.

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taken from language A, here Spanish, which in turn selects an infinitive from language B, here German:

- (1) *Juan hace nähen das Hemd.*
 Juan does sew the shirt
 ‘Juan sews the shirt.’
 (González-Vilbazo and López 2011: ex. [1])

The second pattern is to use a verbal affix from language A, here German, with a stem from language B, here Spanish as illustrated in (2). The mixed form then inflects as if it were a German verb. I will refer to this pattern as the affixal pattern here. As we see in (2), the light verb strategy can be coordinated with the affixal one, suggesting that speakers regard them as elements of the same type/category:

- (2) *Wir utilisieren spanische Worte, die dann alemanisiert werden y*
 we use Spanish words, that then germanized become and
 hacen *klingen* un poco raro.
 do sound a bit strange
 ‘We use Spanish words which are then germanized and sound a bit strange.’
 (González-Vilbazo and López 2011: ex. [2])

I will refer to the patterns in (1) and (2) as instances of language mixing, following Tracy (2000), and Alexiadou et al. (2015b), and avoid using the term code-switching (Poplack 2004) or code-mixing (Muysken 2000). As stated in Alexiadou et al. (2015b), language mixing is understood as involving lexical items and grammatical features from two languages that appear in one sentence (cf. Muysken 2000), it can either be word internal, as in (2), or involve lexical elements of two languages, as in (1).

Both types of mixing are found in a great variety of language mixing pairs, see e.g. the discussion in Muysken (2000), Myers-Scotton (2002), Edwards and Gardner-Chloros (2007), Wohlgemuth (2009), Bandi-Rao and den Dikken (2014), Veenstra and López (2016) among others, and references therein.

The empirical concerns of this paper are twofold. First, it will discuss the LVC and the affixal pattern in mixing varieties involving Greek, namely Greek-German, and Cypriot Greek-English. Second, it will compare the Greek mixing varieties to their Spanish-German counterpart. The data to be discussed involving Greek as one of the mixing languages are taken from the literature. Specifically, the Cypriot Greek-English data have been presented in Fotiou (2010),

Garnder-Chloros (1992), and Garnder-Chloros (2009) (see also Edwards and Garnder-Chloros 2007); the Greek-German data have been briefly discussed in Alexiadou (2011), drawing from Fotopoulou (2004).²

- (3) a. *kano abschalten*. LVC
do.1SG kick.back.INF
‘I am kicking back.’
(Alexiadou 2011: ex. [12])
- b. *skan-ar-o*. affixal pattern
scan-AFF-1SG
‘I am scanning.’
(Alexiadou 2011: ex. [13])
- (4) a. *kamno improve*. LVC
do.1SG improve
‘I am improving.’
(Garnder-Chloros 2009: ex. [5])
- b. *kansel-ar-o*. affixal pattern
cancel-AFF-1SG
‘I am cancelling.’
(Garnder-Chloros 2009: 50)

As we will see later on in detail, all the mixing varieties exemplified in (1)–(4) behave alike as far as their LVCs are concerned: the light verb comes from Spanish and Greek respectively, and the German verb appears in the infinitival form. However, there is a puzzling difference, when it comes to the affixal pattern. According to González-Vilbazo and López (2011: 835), in the Spanish-German variety “there is a mirror asymmetry. German/Spanish bilinguals accept (and produce) nonce words created by joining together a Spanish root and a German verbal inflection. However, these same bilinguals reject a word made up of a German root and a Spanish verbal inflection.” The asymmetry is the reverse in the Greek mixing varieties: it is always a German/English root that combines with a Greek affix, and speakers reject the combination of a Greek root with a German inflection. The question that arises is what then, if any-

² See also the discussion of Greek-American English in Seaman (1972), Merchant (2015), Greek-Australian English in Tamis (1986), Greek-Canadian English in Maniakas (1991). See also Ralli (2016) for discussion of several strategies and patterns of loan verb integration across Greek dialects.

thing, determines the choice between these strategies and which strategies are available in each mixing variety.

The theoretical concern of the paper is to investigate how such mixing patterns feed linguistic theory. Tracy (2000) stated that the study of language mixing has a great deal to offer to linguistic theory, and this is the starting point for my investigation here, see also Grimstad, Lohndal and Åfarli (2014). In line with González-Vilbazo and López (2011), Bandi-Rao and den Dikken (2014), Grimstad, Lohndal and Åfarli (2014), Alexiadou et al. (2015b), Veenstra and López (2016), this article should be viewed as an argument for generative analyses of language mixing. In particular, it contributes to the discussion of verbal decomposition and the building of VPs, in the spirit of Ramchand (2008), and Alexiadou et al. (2015a), as well as other work that deals with the nature of little *v*, see e.g. also the discussion in Embick (2010), and Harley (2013). In the course of this paper, it will become clear that our current understanding of processes of building verbs as well as complex predicates in the syntax has a lot to say about the patterns presented here. Importantly, however, patterns of verb formation found in language mixing can also inform our theories of the building blocks of verbal meaning. They also provide important insights into general processes of language change and language development.

A lot of recent work on the building blocks of verbal meaning, see e.g. Alexiadou et al. (2015a), Embick (2004), Harley (2013), cf. Doron (2003), Ramchand (2008), views verbs as complex units. From the perspective of the framework of Distributed Morphology, verbs are built out of the combination of an uncategorized root with functional material, little *v* in particular, which acts as the categorizer of this root. Adopting this view, the difference between complex predicate formation (i.e. secondary resultative predication) and simple verb formation relates to the elements that appear as the complement of *v*, a root, which in combination with *v* will become verbal, or an already categorized XP, which will lead to complex predicate formation, see Embick (2004), and Alexiadou et al. (2015a).

An important difference between monolingual and bilingual grammars is that the latter can divide these blocks across two vocabularies, i.e. pick a root from language A, and a realization for *v* from language B. However, since *v* is a phase head, depending on the vocabulary it is taken from, it will determine the syntax of the VP is that of the language it was selected from. Specifically, I will argue that the affixal pattern involves a combination of an uncategorized root with a little *v* head that categorizes the root, but cf. González-Vilbazo and López (2011). Little *v* is a phase head in the sense of Embick (2010), see also Arad (2005): it fixes the phonology and the interpretation of the root, when this incorporates into *v*. In the affixal pattern, German is the language of catego-

rization in the Spanish-German pair, while Greek is the language of categorization in the Greek-German/English pairs. I will attribute this to the strong morphological cues for verbalizers in German and Greek and the absence thereof in Spanish. In the affixal pattern, the root incorporates into *v*, and thus the resulting *v* can bear further inflection that comes from the verbalizer language. By contrast, there are two sources for the LVCs in (1), and (3a)/(4a). Instances of LVCs with particle verbs involve complex predicate formation, i.e. the combination of a root with an XP, ResultP in particular. Instances of LVCs with simple verbs involve a structure similar to that of the affixal pattern without incorporation, as I will argue in detail in Section 6.2.

The paper is structured as follows. In Section 2, I briefly summarize some previous literature on these two patterns. In Section 3, focusing on LVCs, I show that LVCs are present in monolingual grammars as well. In Section 4, I give an overview of the syntactic properties of the two patterns on the basis of González-Vilbazo and López (2011). In Section 5, I turn to a description of the Greek-German and Cypriot Greek-English variety and show how it differs from the other varieties discussed in the literature. In Section 6, I turn to the analysis of the constructions using the tools of Distributed Morphology and Minimalist Syntax. Section 7 concludes my discussion.

2 Language mixing and (complex) verb formation

Researchers working on the two patterns I am interested in all acknowledge that the constructions are typologically and geographically very well spread (Myers-Scotton 2002). Most of the cases discussed in the literature come from immigration settings. This is also the case for this paper.

The literature is not in agreement as to the units that participate in these patterns. Moravcsik (1975) claims that LVCs do not instantiate cases of verb borrowing, rather the forms are borrowed as nouns, and as they need some sort of re-verbalization, as Wohlgemuth (2009) labels it, they appear following a light verb.

Muysken (2000) acknowledges at least two patterns of LVCs: i) the new verb from language X is a nominalized complement to a causative helping verb from language Y in a compound; ii) the new verb from language X is an infinitive and the complement of a native auxiliary from language Y.

Wohlgemuth (2009) argues that the affixal pattern and the light verb strategy are two ways to create verbs in the recipient language. According to this

author, it must be the case that what is introduced in the recipient language is not a verb, as speakers make use of some form of verbalization strategy in order to actually use these forms.

I consider this a very important insight, and I will build on this idea. Coupling this perspective with work within Distributed Morphology, the affixal pattern involves an uncategorized root that combines with a categorizing head *v*. By contrast, González-Vilbazo and López (2011), and Veenstra and López (2016) make use of the term verbal root, and crucially include VPs as the complements of *v* in their structures. The LVC, however, can be sub-divided into two sub-cases: those involving particles verbs, which I will argue are cases of complex predicate formation, and those involving simple verbs, which will have an analysis similar to that of the affixal pattern. I will discuss these patterns in detail in Section 6.2.

3 LVCs occur in monolingual grammars as well

As is well known, LCVs are also found in monolingual grammars, e.g. Persian and Kurdish, Karimi-Doostan (2005). In this group of languages, light verbs combine with verbal nouns to build verbal meaning, see (5). Such combinations are also found in mixing contexts, see (6), an Cypriot Greek-English example from Fotiou (2010), the most dominant pattern, however, seems to actually involve a verbal element, specifically an infinitive, as in (1), and (3a)/(4a), see Muysken (2000):

- (5) *John baülekan-aga va Mary haba KERD.* (Kurdish)
 John doll-the to Mary giving do.PAST
 ‘John gave the doll to Mary.’
 (Karimi-Doostan 2005: ex. [1b])
- (6) a. *I Katerina kani acquaintance me to Rikko.* LVCs + nominal
 the Katerina does acquaintance with the Rikko
 ‘Katerina gets acquainted to Rikko.’
 (Fotiou 2010: ex. [16b])
- b. *Kamno calling.*
 do.1SG calling
 ‘I call.’
 (Fotiou 2010: ex. [17a])

Nevertheless, it is important to note that LVCs of the type in (1) are not merely a feature characterizing bilingual speech, but rather they naturally occur in other grammars as well. For instance, Dal Negro (2004: 192), and references therein, points out that in several German dialects, the *tun*-periphrasis is used as an ‘alternative expression of obsolete and rare forms’. In fact, in the Walser dialects, as the author states, there seems to be perfect overlap between the *tun* forms and separable prefix verbs. Her discussion suggests that the properties of the *tun*-periphrasis found in German dialects is comparable to what we see in at least some mixing varieties, as will be discussed in detail below.

Note also that it has been argued that present-day German *tun* is similar to dialectal *do* and *do* constructions in earlier and child English. Interestingly, while Standard Modern English does not have anything comparable to the German *tun*-periphrasis, such a construction has been argued to exist in earlier English, and some dialects of present-day English, see (7) from Schütze (2004), and references therein. According to Schütze, the paradigm in (7) shows free variation in South-Western dialects of British English, with the latter example lacking any special prosody, i.e. *do* is phonologically unstressed and semantically non-emphatic.

- (7) a. *Mary visited her brother.*
 b. *Mary did visit her brother.*
 (Schütze 2004: ex. [1])

As Schütze points out, a further environment where *do* appears is in child English. For instance, Roeper (1991) and others noted that *do* in the examples in (8) was not invoked by any of the usual triggers, i.e. it is unstressed and non-emphatic:

- (8) a. *I did wear Bea’s helmet.*
 b. *I do have juice in my cup.*
 (Schütze 2004: exx. [4b], [4c])

According to Schütze, since child grammars must conform to UG, (8) is further evidence that what he labels spurious *do* is a possibility in human languages. Thus we can safely conclude that what we find in the context of language mixing is an unmarked pattern available to language learners (see Bhatia and Ritchie 2001), but also a pattern available in earlier stages of a language or in dialects that followed a different development from the standard language.

Although the light verb in LVCs seems to be semantically empty, these light verbs are not general all purpose verbs (GAP verbs). GAP verbs have been

discussed in the context of child language acquisition and language impairment. As has been pointed out by e.g. Rice and Bode (1993), these verbs have no specific meaning, and predicates such as *do* and *get* figure among the list of GAP verbs. GAP verbs are taken to substitute a more specific verb meaning, e.g. **you get in that guy*, where *get* is used instead of *push*, from Rice and Bode (1993: 121). We can safely conclude that the GAP strategy is not what is under discussion here. GAP verbs have been associated with problems in retrieval of verb meaning and the GAP verb is a place-holder for a specific verb. This is not what we see in LVCs, where a complex and specific verb meaning is present, it is just put together differently (see Kambanaros and Grohmann [2015] for some discussion on the differences between GAP verbs and LVCs).³

4 The syntactic properties of LVCs and affixal patterns

González-Vilbazo and López (2011) offer a detailed discussion of the core syntactic properties of light verb mixing pairs for the Spanish-German variety. First of all, they note that the relationship is asymmetric. What this means is the following: in the case of their Spanish-German pairs, the light verb comes from Spanish, while the lexical verb comes from German, and it is not possible to reverse this, i.e. to form a string where the lexical verb is Spanish and the light verb comes from German.

- (9) **Juan tut coser una camisa.*

Juan did sew a shirt

‘Juan sew a shirt.’

(González-Vilbazo and López 2011: ex. [7])

A similar type of asymmetry is found in the affixal pattern. That is speakers can combine a Spanish root with a German verbal inflection, (10a), but they cannot generally combine a German root with a Spanish infinitival inflection, (10b).

- (10) a. *cos-ier-en* ‘sew’

b. **benutz-ear* ‘use’

³ Many thanks to an anonymous reviewer for pointing this out to me.

With respect to (10b), it should be noted that it is possible to form novel mixed verbs in Spanish varieties by using the default affix *-ear*, e.g. *mopear* ‘to mop’ (see Muysken [2000] for discussion).⁴ González-Vilbazo and López (2011) also give examples such as *anmeldear* ‘register’. I will consider these formation special cases and I will briefly discuss them in Section 6.2.

Light verbs cannot form passives, a property they share with light verbs in monolingual varieties. Veenstra and López (2016), citing Tamis (1986), point out that Greek-English pairs have two types of LVs, an active one, as in (3a), and a passive one, bearing non-active morphology, as in (11):

- (11) *gin-ete* *affect*.
 become-NACT affect
 ‘He is affected.’
 (Veenstra and López 2016: ex. [11])

Moreover, as González-Vilbazo and López (2011) observe, these varieties are characterized by feature spreading. They define the term as follows: if we look at the syntax of the verb phrase in these mixing pairs, we observe that the word order follows the syntax of the language of the light verb and not of the lexical verb, i.e. the word order is VO in the Spanish-German pair (1). This is the appropriate word order in Spanish, but not in German; in strings where an auxiliary appears with a lexical verb the correct word order is OV.

Finally, González-Vilbazo and López (2011) claim that the strings that emerge in these mixing varieties are absent from the input grammar, i.e. they do not exist in either German or Spanish. In Spanish, the light verb has a causative interpretation. Colloquial and dialectal German does have the so-called *tun*-periphrasis, (12), but *tun* is an inflectional element, according to these authors, and not a light verb, see Erb (2001), and Alexiadou (2011), but cf. the discussion in the previous section.

- (12) *Sie tut ein Buch lesen*.
 She does a book read
 ‘She reads a book.’

With this background in mind, let us now turn to language mixing pairs involving Greek as one of the languages.

⁴ Thanks to anonymous reviewer for pointing this out to me. As we will see in Section 6.2, González-Vilbazo and López (2011) take this to be an instance of borrowing, as this is a very rare occurrence in their data.

5 The Greek-German language mixing variety and its Cypriot Greek-English counterpart

5.1 Data sources

The data discussed in this paper come from the following sources: the Cypriot Greek-English examples on LVCs are taken from Fotiou (2010). In this article, Fotiou reports on data collected from naturally occurring conversations, which were carried out in Cyprus, and in the UK. Fotiou also used non-recorded data, which she obtained through participant observation. Fotiou's study offers also a statistical analysis of the patterns found, but does not offer a syntactic analysis thereof. Neither does she discuss the affixal pattern. The data illustrating the affixal pattern in the Cypriot Greek-English variety come from Gardner-Chloros (1992) and Gardner-Chloros (2009). Among the LVCs discussed in Fotiou, 41.5% of the examples in her corpus involve an infinitival form, 29% a noun, and 7.5% a gerundive nominal, 7.5% are phrasal verbs, and 6% participles.

The Greek-German data discussed in this paper were collected by Fotopoulou (2004) and involve naturally occurring conversations in different communicative settings. Fotopoulou recorded five communicative situations, involving six female and one male speakers, aged between 23 and 27 years old. All recordings were conducted in Stuttgart. Fotopoulou does not offer a statistical analysis of the patterns described in her study, as she was interested in determining what communicative factors trigger code-mixing. Neither does Fotopoulou provide a syntactic description or analysis of the data. Nevertheless, what is found in the Greek-German variety is not strikingly different from language-mixing patterns involving other language pairs. The Greek-German data were then complemented with additional data collected from two additional speakers of the German-Greek variety, who match the profile of the speakers in Fotopoulou's study. This was necessary in order to determine what combinations are not possible.

5.2 The properties of the Greek mixing varieties

As already mentioned, the two main patterns of verb formation identified above for Spanish-German can also be found in the Greek-German mixing variety:

- (13) a. *kano abschalten.* LVC
do.1SG kick.back.INF
'I am kicking back.'

- b. *skan-ar-o.* affixal pattern
 scan-AFF-1SG
 ‘I am scanning.’

Both of these have been reported to exist in the Cypriot Greek-English variety as well, for instance, see (14) and (15) taken from Gardner-Chloros (2009) and Fotiou (2010):

- (14) a. *kamno respect.*
 do.1SG respect
 ‘I respect.’
 (Gardner-Chloros 2009: 34)

- b. *Men to kámis turnoff.*
 NEG it do turnoff
 ‘Do not turn it off.’
 (Fotiou 2010: ex. [18b])

- (15) a. *muv-ar-o.*
 move-AFF-1SG
 ‘I am moving.’
 b. *kansel-ar-o.*
 cancel-AFF-1SG
 ‘I am cancelling.’
 (Gardner-Chloros 2009: 50–51)

Let us consider the properties of the two patterns in some more detail.

Beginning with the affixal pattern, note that the situation is the reverse of what was observed for the Spanish-German pair: in all the above examples, it is the German and/or English root on which the Greek affix is attached to. In both varieties, it is the affix *-ar-* that is used to verbalize the root. This affix triggers stress shift (to the penultimate syllable). Unlike other affixes such as *-iz-*, *-ev-*, *-on-*, *-ar-* is used less frequently in Modern Greek and selects a narrow range of native bases, but it is the default affix in the mixing varieties. Originally, as stated in Mackridge (1987), it was used for Romance loans (*derapáro* ‘déraper’ = ‘I skid’); the affix itself has its source in the Italian affix *-are*.⁵ Clearly, it can now apply to Germanic stems as well.

⁵ In Italian, *-a-* is the default theme vowel, i.e. all new verbs enter the pattern of conjugation I verbs, having the theme vowel *-a-* (Ippolito 1999).

Turning to the light verb strategy, as also observed in González-Vilbazo and López (2011), the light verb found in LVCs does not have the same use as it has in the monolingual grammar. Stavrakaki (1999) notes that the light verb *kano* appears in a number of environments in Greek; (16) is cited in Alexiadou (2011), drawing from Stavrakaki (1999):

- (16) a. *kano to spiti.* V+N
do.1SG the.house.AKK
'I clean/build/construct the house.'
- b. *ekana jatros / ekana pos ime eksipnos.* V+N/V+clause
did.1SG doctor did.1SG that am clever
'I used to be a doctor / I pretended to be clever.'
- c. *ekana na figo.* V+subjunctive
did.1SG SUBJ go.1SG
'I tried to leave.'
(Alexiadou 2011: ex. [16])

Stavrakaki observes that the above combinations receive a rather different interpretation, e.g. pretend, try etc. This is not the reading the Greek-German or Greek-English strings have; their meaning is that of the simple German and English verbs.

However, there are some cases in which the Greek light verb *do* can be combined with a noun in order to refer to an activity, as shown in (17), where the light verb pattern is used instead of the corresponding verb *gimnazome* 'exercise.NACT.1SG'. Often the verbs that would correspond to such strings are archaic, i.e. *podiloto*, 'bike', *athlume* 'exercise', and thus speakers avoid them. Strings of the type in (17) correspond to structures discussed in Hale and Keyser (2002), where a light *v* takes a nominal complement; as discussed by these authors, an alternative realization of this structure would involve incorporation of the nominal complement into *v*, giving rise to so-called denominal verbs. Such strings are in principle similar to the LVs with verbal nominal complements, as shown in (6):

- (17) *kano gimnastiki.*
do.1SG exercise
'I exercise.'
(Fotiou 2010: 73)

What we can maintain, however, is that the combination of a light verb *do* with a simple verbal form is out in Greek.

As was the case in the Spanish-German pair, the syntax of the VP follows that of Greek; this becomes especially clear if we compare the two Greek varieties. For instance, consider the patterns in (18) and (19). Cypriot Greek differs from Standard Greek in that it is an enclitic language, while Standard Greek is proclitic. In the Greek-German variety in (18) the clitic precedes the finite verb, while in (19), from Fotiou (2010), it follows it, as is the case in Cypriot Greek:

- (18) *de hriazete na to kani lesen.*
 NEG need.3SG SUBJ it do.3SG read.INF
 ‘He does not need to read it.’

- (19) *ekane se add?*
 did you add?
 ‘Did he add you?’
 (Fotiou 2010: ex. [27])

There are two important properties of the Greek mixing pairs that will concern me here. First, as Alexiadou (2011) observed, the affixal and the light verb pattern are not interchangeable in Greek-German. Importantly, particle verbs combine only with the light verb and do not appear in the affixal pattern. From what we can tell from the literature on Cypriot Greek-English, English phrasal verbs only appear in the light verb pattern, see (14b) above:

- | | |
|---|--|
| (20) a. <i>bren-ar-o.</i>
burn-AFF-1SG
‘I am burning (a cd).’ | b. <i>skan-ar-o.</i> affixal pattern
cancel-AFF-1SG
‘I am scanning.’ |
| (21) a. <i>kano abschalten.</i>
do.1SG kick.back.INF
‘I am kicking back.’ | b. <i>kano anrufen.</i> LVC
do.1SG call.INF
‘I am calling.’ |

What are the conditions on the affixal pattern? (20) contains mono-syllabic stems which combine with *-ar*. But that does not mean that every monosyllabic stem goes with *-ar*. For instance, in (22), we have a mono-syllabic stem, but it cannot appear in the affixal pattern and can only appear in the light verb strategy. Note that in (4a) as well as (14a) a light verb combines with what can be analyzed as a prefixed verb from a diachronic point of view in the Cypriot Greek-English variety, e.g. *respect* is from *re* + *specere* ‘look’ and *improve* is from *en* + *prou* ‘proud’, i.e. a complex form. Still, Fotiou cites examples such as *kamno use* ‘do use’, where we see that a light verb combines with a non-prefixed/non-particle verb:

- (22) *na kanun kämpfen.* LVC
 SUBJ do.3PL fight.INF
 ‘They should fight.’
 (Alexiadou 2011: ex. [25])

Second, while we saw above that in the Spanish-German variety, a Spanish root can combine with a German verbal inflection, this is not attested in the Greek-German and the Cypriot Greek-English variety. In these varieties, the Greek affix *-ar-* combines with English/German stems.

The question then is what explains this distribution and the differences among mixing varieties.

6 Building blocks of verbal predicates

6.1 Background assumptions

All the above then seem to suggest that in order to understand the restrictions and distribution of the patterns found in language mixing, we need to have a theory of VP formation and of how light verb combinations emerge. That speakers regard the affixal and the light verb pattern as equivalent is clearly shown in data such as (2) above. Building on much recent work, I will sketch an approach to verb formation and light verb constructions. Specifically, I will assume a view on word formation that adopts the main ideas of the framework of Distributed Morphology (see Arad 2005; Marantz 2001; Embick 2010). From this perspective, word formation processes involve the following ingredients:

1. Language has atomic, non-decomposable, elements, called roots.
2. Roots combine with the functional vocabulary and build larger elements.
3. Roots are category neutral. They are then categorized by combining with category defining functional heads, in our case *v*.

It is the third idea that will be relevant for our account of the affixal pattern.

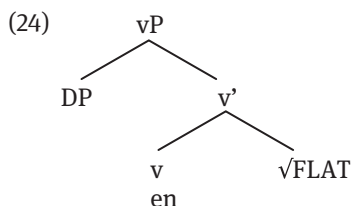
Moreover, following Alexiadou et al. (2015a), I assume ‘that the syntactic derivation delivers a representation to Spell-Out, which is then sent to both PF and LF. On the way to PF, morphological operations will take place and the syntactic structures will receive a morpho-phonological representation. Put differently, morpho-syntactic exponents are inserted late through the operation Vocabulary Insertion. There are constraints on insertion, which largely follow from language-specific restrictions on Vocabulary Insertion.’ This particular

perspective, coupled with the assumptions stated above, actually leads one to expect word internal mixing of the type we have seen in the affixal pattern. This is because bilingual grammars have access to two distinct sources for Vocabulary Insertion.

Let me begin with a basic outline of the formation of verbs and complex predicates in monolingual grammars, and then proceed to explain the mixing varieties. Both patterns used to form lexical verbs and light verb combinations discussed in this section are inspired by Hale and Keyser's (2002), and Embick's (2004) insights and analysis.

In particular, authors adopting the basic assumptions made within Distributed Morphology agree that roots are uncategorized. Categorization takes place in the syntax via the presence of little *v*, in the case of verbs. Thus, a string such as (23), from Embick (2004: 365), has the structure in (24), Embick's (27).

(23) *The metal flatt-en-ed.*

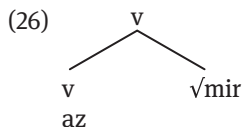


In (24), *-en* realizes *v*. As has been pointed out in the literature on Greek, the language has a set of verbalizer affixes, which attach to stems/roots and build verbs in the language (see e.g. Giannakidou and Merchant 1999; Alexiadou 2001, 2011; Anagnostopoulou and Samioti 2014; Panagiotidis et al. 2017; Ralli 2016). This is illustrated in (25), where the verbalizing affixes are marked in bold. All verbs are in the 1st person singular:

- | | | | | | |
|---------|----------------------------|---------------------------|----|-------------------------|-------------------------|
| (25) a. | <i>aspr-iz-o</i> | <i>kathar-iz-o</i> | b. | <i>pag-on-o</i> | <i>ler-on-o</i> |
| | 'whiten' | 'cleaned' | | 'freeze' | 'dirty' |
| c. | <i>diaplat-en-o</i> | <i>arost-en-o</i> | d. | <i>sten-ev-o</i> | <i>berd-ev-o</i> |
| | 'widen' | 'become sick' | | 'tighten' | 'confuse' |
| e. | <i>diav-az-o</i> | <i>mir-az-o</i> | f. | <i>pul-a-o</i> | <i>xal-a-o</i> |
| | 'read' | 'split, share' | | 'sell' | 'destroy' |

(Anagnostopoulou and Samioti 2014: 96)

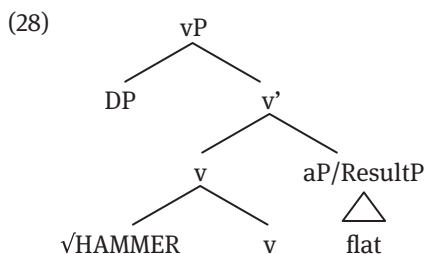
These patterns have been analyzed as follows: the affixes listed are taken to realize the categorizing head *v*, and taking the root as its complement or its modifier, as in (26):



As Panagiotidis et al. (2017) show, the presence of these affixes does not correlate with any Aktionsart or transitivity properties, i.e. it can appear with both transitive and intransitive variants of verbs undergoing the causative alternation (Alexiadou et al. 2015a for details), it can appear both on change of state and activity predicates, and importantly it is independent of Voice, Aspect, and Tense morphology. Thus it can safely be concluded that these affixes realize *v* in structures as in (26). The authors also note that *-ar-* is the default affix, which verbalizes non-native roots, but it is also used to coin verbs from sounds etc, see also Ralli (2016), who considers *-ar-* an allogenuous exaptation.

In order to understand how light verbs emerge in this system, we need to take a closer look at structures (24) and (26) in comparison with secondary resultative predication. According to Embick (2004), the structure of secondary resultative predicates as in (27) differs in that the complement of *v* is then a phrase, aP or ResultP, as in (28).

(27) *The metal hammered flat.*



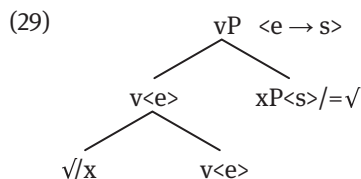
Crucially, according to Embick (2004: 370): “*v*’s complement cannot be a bare Root when *v* has a Root merged with it because the Root in the complement position would be uncategorized.” Embick leaves open the possibility that *v*, when it is unoccupied and takes an aP complement, is realized by light verbs like *turn*, as in *John’s face turned red*. That is, it is possible to argue that root incorporation into *v* takes place when *v* is realized by *-en* or *-ify*. When *v*’s

complement is an aP, root incorporation does not take place, and *v* can be realized as a light verb. This all suggests that *v* cannot remain unoccupied: it will have to be lexicalized as an affix or as a light verb, in case a root does not merge with it.

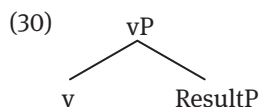
Schäfer (2012), and Alexiadou et al. (2015a) build on this analysis and propose the following:

heads and other heads building event structure express just different types of basic eventualities. *v* can express an unspecified and unbounded event (a Process in Ramchand's 2008 terms). Adjectives and prepositions also introduce states as do stative roots like *√open* and *√cool*. Syntax can build complex event structures out of these atomic parts. (Alexiadou et al. 2015a: 50).

Alexiadou et al. (2015a) propose the structure in (29), their (93).



Let us see how (29) is to be understood. In the case of the e.g. the Greek predicate *aspr-iz-o* ‘whiten’, or its English counterpart for that matter, both lexical resultative verbs, we have the following derivation: the root moves and incorporates into *v*. *v* is realized by the affix *-iz-* or *-en*. Greek lacks particle verbs of the Germanic type. In languages that have such predicates, these are generally considered to be compositional resultatives (see e.g. Ramchand and Svenonius [2002]; Roßdeutscher [2014] and references therein, and the contributions to Dehé et al. [2002]). Compositional resultatives are built as follows, see also (Embick 2004). I assume as in Schäfer (2012) that *v* takes as its complement a complex phrase, xP or root in the structure above, labeled ResultP, following e.g. Ramchand (2008), see (30).



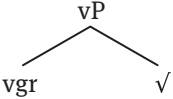
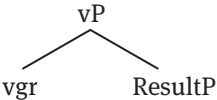
In this case, *v<e>* does not find a root with phonological matrix to combine with, it is spelt-out as a copula or a light verb (*become, go, turn ...*), as an xP complement cannot move into *v*. That is, in the case of e.g. aPs or ResultPs, *v*

cannot associate with a single root and it is forced to be realized as a light verb.⁶

In the above structures, *v* is a verbalizer, and in Embick's (2010) terminology a phase head in the sense that not only does it provide a category to an uncategorized root but determines a domain for phonology and interpretation.

6.2 Light *v* in mixed grammars

Let us now turn to the properties of the mixed grammars. I propose that the structures in (31) for the Greek-English/German pairs, (31a) for the affixal and (31b) for the LVC pattern involving particle verbs:

- (31) a.  affixal pattern
- b.  LVC with particle verbs

Considering the affixal pattern first, we observed that in Greek this is some sort of default affix to verbalize non-native roots, and it is used in all sorts of contexts. These affixes can be considered as incorporating, adopting Bandi-Rao and den Dikken's (2014) terminology. Thus in the affixal pattern, the root incorporates into *v*. The reason why this affix cannot be used in the context of phrasal verbs is because these are complex predicates, i.e. ResultP. In other words, *v* does not find any root to combine with, and thus it is realized as a light verb, as it is unoccupied, cf. Ralli (2016) for an alternative analysis of the English-Greek pairs.

As already demonstrated above, in LVCs all inflectional marking goes on *kano*. The lexical verb appears in the infinitive. Why should that be the case? I assume, following Embick (2010), that categorizing heads are phase heads. In the case of the affixal pattern, the verbal root incorporates into *v*. In the case

⁶ Terje Lohndal raises the following question: In a case a language has multiple light verbs, which one will be chosen to realize *v*? In languages that do not make extensive use of light verbs, the assumption is that there is a default realization. In languages such as Persian, however, which have multiple light verbs, Karimi-Doostan (2005) claims that the various light verbs available in the language can be used interchangeably.

of the LVC, incorporation is ruled out, and the ResultP is spelled-out in the complement domain of *v*, see (31b). As *v* is a phase head, its introduction in the structure leads to a Spell-Out of its complement. Elements that move out of the complement domain can be spelled-out together with the phase head. Since in this part of the structure no layers can be found that introduce agreement, tense and other features, German, as well as English, uses the default form, which is the infinitive. That is this form, being underspecified for finiteness, person and number features, can be inserted in a position that otherwise is characterized by root insertion (also unspecified for all of the above features). That speakers make use of the infinitive as the underspecified form has been reported also in the literature on (second) language acquisition, cf. e.g. the notion of root infinitives in Rizzi (1993/1994), see White (2003), and references therein.

An issue that arises at this point is why incorporation is blocked in the case of particle verbs only in the mixed variety and not in monolingual grammars. Recall, however, that in dialects of German this is what is going on as well: the *tun*-periphrasis occurs with verbs that combine with prefixes (Dal Negro 2004). Thus in principle it is not a pattern that is excluded from monolingual grammars. In the standard monolingual variety where this is indeed excluded, we could appeal to Acedo-Matellan's (2010), and Ramchand and Svenonius's (2002) analysis of resultatives and argue that the verb is introduced in *v*, while the particle realizes ResultP.

However, we have seen above that not only particle verbs block incorporation, certain simple verbs do too, e.g. *kämpfen* 'fight', *schwimmen* 'swim', *laufen* 'run', and e.g. *use*. In fact, in the Spanish-German variety most examples cited are of this type. I asked speakers that have a similar profile to that of Fotopoulou's (2004) study participants, and they confirmed that forms such as the ones in (32) are ungrammatical:

- (32) a. **kämpf-ar-o* **kampf-ar-o*
 fight-AFF-1SG
 b. **schwim-ar-o*
 swim-AFF-1SG
 c. **lauf-ar-o*
 run-AFF-1SG

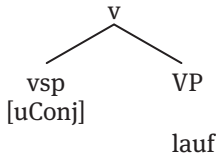
We cannot assume structure (31b) for these forms, as these are crucially not complex predicates. Thus they should be analyzed on the basis of (31a), i.e. they are roots that do not incorporate. Since they remain in the complement

domain of *v*, they bear the default infinitival form. The question then is why they do not combine with *v*. I believe that the reason for this is morpho-phonological. That is in this case, incorporation would give a result giving rise to really strange phonological words, a situation discussed also in the context of English-Telugu switches in Bandi-Rao and den Dikken (2014), see also Mac-Swan (1997). For instance, word internal as well as word initial consonant clusters are dis-preferred so Greek speakers make use of the light verb strategy only. Moreover, note that the forms in (32) contain either umlaut or diphthong, both of which do not figure in Greek phonology. I have been assuming that *v* is a phase head in the sense of Embick (2010), it creates a local domain for phonology and interpretation. Since *v* is taken from the Greek vocabulary, the result of word formation via incorporation has to conform to Greek phonotactics.

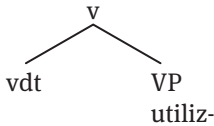
The contrast between *skanaro* ‘scan’ vs. *kano laufen* ‘run’ is reminiscent of a series of phenomena discussed in Embick and Noyer (2001), where Vocabulary Insertion at PF for functional heads is sensitive to properties of roots. A characteristic case that comes to mind is the contrast between synthetic and analytic comparatives in English, e.g. *smarter* vs. *more intelligent*. Both patterns have the same structure, but show different properties. As Embick and Noyer state (2001: 564), “the suffixation of the morpheme is dependent upon the prosodic shape of the host and therefore happens after the insertion of specific adjectives. The information that is required for the process to occur is Vocabulary specific; and, because structures are linearized by Vocabulary Insertion, the process is defined over a linearized structure.” Finally, it is not clear whether it is an accident of the data collection that such predicates involve activity predicates, as it is well known that activity predicates can appear in the light verb strategy even in native grammars, taking nominal complements (Hale and Keyser 2002). If the pattern turns out to really be restricted to such predicates, then they might be amenable to the structure in (37) below.

González-Vilbazo and López (2011) propose in their analysis of the Spanish-German variety that the light verb strategy is a last resort operation. They argue that every Spanish verb carries specification for conjugation class. Moreover, *v* bears unvalued features for conjugation class. In order to value this feature V-to-*v* movement takes place. By contrast, German verbs are not specified for conjugation class. Thus it is never the case that a German verbal root could incorporate into a *v* specified for conjugation class. On the other hand, a Spanish verbal root can be embedded and incorporate into a German *v*, which is unspecified for conjugation class, (33b). The light *v* is always realized with the Spanish verb in (33a), as a German verbal root could never incorporate into a *v* specified for conjugation class.

(33) a.



b.



These authors argue that we actually have competition between the two structures and this is how the light verb pattern emerges as a last resort strategy.

However, as we have seen the situation is very different in both Cypriot Greek-English, and Greek-German: in both cases it is always the German/English root that incorporates into *v*. This suggests that for our patterns, structure (33b) is not available. Only a variant of (33a) is, as in (31). What, however, would block a structure of the type in (32b) with a Greek root incorporating into the German affix *-ier*? Bandi-Rao and den Dikken (2014) observe a similar asymmetry in the English-Telugu mixing variety, where only Telugu roots can combine with English *-ify*, but no English root can combine with the Telugu *-inc* affix, as shown in (34).

(34) a. *My sister kal(i)p-ified the curry.* *kalp* ‘stir’

(Bandi-Rao and den Dikken 2014: 163)

b. **vaaDu nanni love-inc-EEDu.*

he.NOM me.ACC love-DO-PST.AGR

‘He loved me.’

(Bandi-Rao and den Dikken 2014: 165)

The authors attribute this to the fact that Telugu affix is an incorporator, while the English affix is not. If incorporation took place in (34b), this would give an ill-formed X^0 at PF, and thus it is avoided. By contrast, the Telugu root and the English affix, only come together as a unit at PF, i.e. the Telugu root never incorporates into *-ify*.

One could then suggest that the affixal asymmetry observed relates to the fact that the Greek affix is an incorporator, while the German one is not. I do not think there is much evidence to support this claim. In fact, it behaves like an incorporator in the Spanish-German mixing variety. Thus, in order to answer the asymmetry question and in view of the data discussed here, it becomes

important to compare Spanish, Greek, and German and the properties of their verbal systems.

Spanish, like German, and unlike Greek, has infinitives, which belong to three conjugation classes. That is in Spanish the different thematic vowels signal the different conjugation classes: *-ar*, *-er*, and *-ir*. For instance, *cantar* ‘sing’, *beber* ‘drink’ and *vivir* ‘live’. Oltra-Massuet (1999) analyzed these thematic vowels as realizations of *v*, see also Picallo (1991). As has been mentioned, however, Spanish seems to have a default affix used to verbalize non-native roots, namely *-ear*. I will come back to that.

Greek, like Spanish, has three conjugation classes, which all differ in term of morpho-phonological properties. Class I verbs show root stress. This also holds for class III verbs. Class II verbs, however, show non-root stress. As Panagiotidis et al. (2017) point out, its members take a vocalic extension in certain forms and shift the stress away from the root in others:

- (35) a. *agap-ó* ‘love-1SG’
 b. *agap-á-s* ‘love-2SG’
 c. *agap-ís-o* ‘love-PERF-1SG’

They note that the verbalizing affixes of Greek are in complementary distribution with the inflectional pattern of the 2nd conjugation. This suggests that Greek provides morphological evidence for verbalizers, even if these are not overtly present in the form of the verbs. In other words, Greek verbs are always built on the basis of verbalizing affixes.

By contrast, while German lacks conjugation classes, it does have verbalizing affixes. The most productive affix the language has to form verbs is *-ier-*, which is actually a French borrowing. As Wohlgemuth (2009) notes, its function is to derive verbs from nouns or adjectives or add iterative meaning to basic verbs, and he signals that there are something like 1700 verbs built on the basis of this affix. While in earlier stages of the language, according to Wohlgemuth (2009), it was used productively as a verbalizer on verb loans, present-day German prefers direct insertion, i.e. it avoids using the affix on verb loans. According to Neef (2005), the use of this affix as a verbalizer is phonologically conditioned: it appears on mostly Romance (and interestingly enough Ancient Greek, but not Modern Greek) input forms that end in a vowel. By contrast, English input forms receive the German infinitival ending directly in the absence of a verbalizer.

This all suggests that Greek and German, unlike Spanish, provide evidence for the presence of *v*, realized by overt affixes in the monolingual grammar. I would like to suggest that in languages where we have massive morphological

evidence for overt *v*, this gives the learner cues as to the morpho-syntactic representation that can be constructed in the mixed grammar. As is well known, morphological regularity in a grammar is important for establishing generalization in the process of language acquisition. Our two pairs of languages behave differently with respect to that. In the case of Greek-German, Greek is the language with regular verbalizing affixes. In the case of Spanish-German, German is the language with regular verbalizers. Thus in code switching, this regularity is respected.

Secondly, if *-ier-* is phonologically conditioned, as described by Neef, and *v* is a phase head fixing both phonology and interpretation, in the Greek-German variety, *-ier-* is out, presumably, because a combination with *-ier-* and a Greek root would give rise to an ill-formed element phonologically, and thus it is avoided. Again here we have a situation where Vocabulary Insertion at PF for functional heads is sensitive to properties of roots.

Specifically, in the case of roots taken from English or German, there is one option in the mixed variety with Greek as the second language, i.e. to use the default verbalizer in mixing situations, namely *-ar-*. In case *v* does not find a phonological matrix to combine with, as is the case for particle verbs, in view of their more complex syntactic structure, or perhaps because of morpho-phonology in the case of *kämpfen* ‘fight’, incorporation is blocked. Even if the derivation were driven on the basis of conjugation class features, these would be on *v*, just like gender and declension class is a feature on *n*, and not on the verbal root. Since in the Greek-German/English pairs *v* is taken from the Greek vocabulary, the end result has to conform with Greek morpho-phonology. By contrast, the Spanish-German variety has two options, the light verb strategy, where *v* is taken from the Spanish vocabulary, and the affixal strategy, where *v* is realized via *-ier-*. *-ier-* is sensitive to the properties of its root complement, hence allowing Spanish but not Greek roots to incorporate into it.⁷ In other words, e.g. *alemanisieren*, in (2) above, is a fine new German verb, while *halieren*, formed by combining Greek *hal* ‘destroy’ with German *-ier-* is not. As González-Vilbazo (2015) also observes, in mixing patterns, each word seems to correspond to one phonology, not two.

Before concluding there are two issues to address, each raised by an anonymous reviewer. First, as mentioned earlier, Spanish makes use of the affix *-ear* to introduce new mixed forms, see also Muysken (2000). *-e-* could thus be seen as a verbalizer. If this is the case, we expect, as correctly pointed out by the reviewer, that more German (and English) can be found as incorporating into

7 Many thanks to an anonymous reviewer for pointing this out to me.

-e. Naturally, an alternative would be to view this -e as being added very late at PF in order to adapt the Germanic root to Spanish phonotactics, thus making it a case of borrowing and not really an example of the affixal pattern, see González-Vilbazo and López's (2011) discussion on *anmeldear* 'register'. As the anonymous reviewer points out, however, forms such *janguear* 'to hang out' can be inflected for tense and agreement, just like any other verbs. This casts doubts on the borrowing analysis, and suggests that -e can also be analyzed as a verbalizer.

Finally, it has been reported in the Greek-English data the light verb *do* combines with a (derived) nominal, similar to e.g. Kurdish, or a participle, e.g. *kamno developed* 'do develop':

- (36) *kamno calling*
do.1SG call
'I call.'

These patterns would involve a version of the structure in (31b), where the complement of v would actually be an nP, building on Hale and Keyser (2002). Such patterns could be modeled following the light verb+noun combination to express an activity, and crucially have to involve the light verb strategy in the mixing variety, as v combines with a complex XP and thus cannot find a phonological matrix to combine with:

- (37)
-
- ```

graph TD
 vP1[vP] --- v[v]
 vP1 --- nP[nP]
 nP --- n[n
ing]
 nP --- vP2[vP
call]

```

A similar analysis could be given for the Cypriot Greek-English mixing data involving participles, where v would take an aP as its complement. This being a complex XP, it could never give rise to incorporation.

Note that in all our cases the syntax of the mixed varieties follows that of the language that determines or rather offers a lexicalization for v. This has been discussed in González-Vilbazo and López (2011), who argued that in the light verb construction the word order of its complement would be that of the languages of the lexicalization of v; little v is a phase head (Embick 2010), and as such it controls the grammatical properties of its phase. Feature valuation



between *v* and higher functional categories would then have to follow the system of the language that determines the *vP* phase, and as a result all Agree operations.

## 7 Conclusions

As stated in Tracy (2000: 28), language mixing patterns seem to suggest that the two languages that form the mixing variety are activated in parallel. Depending on the properties of the individual languages that participate in the mixing different combinations can be constructed. The picture that emerges from comparing two Greek-mixing varieties to a Spanish one supports this claim as it shows that bilingual speakers have very detailed knowledge of fine properties of their two linguistic systems that become apparent in the context of structuring verbs.

More generally, mixing varieties are UG conform, and many of their properties are found also in monolingual grammars. Thus there is nothing special about the morpho-syntax of language mixing, it follows the general rules and patterns of grammar.

Finally, what we have also seen in this paper is that minimalist syntax as well as late insertion models of word formation are well-suited to account for properties of mixed varieties. As also argued in Alexiadou et al. (2015b), lexicalist models would face problems with explaining the asymmetries observed across varieties, but also important differences among specific language pairs.

**Acknowledgments:** I am indebted to two anonymous reviewers, the editors of this volume, Susanne Trissler, and Terje Lohndal for comments that greatly improved the readability and clarity of this paper. I am extremely grateful to Rosemarie for all her support and guidance and for making it clear to me how extremely useful multilingualism is for linguistic theory. The DFG grant AL554/8-1 is hereby acknowledged.

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